REMARKS

Claims 1, 3-20 and 22-29 are currently pending in which claims 1, 19 and 28 are in independent format. In this response claims 1, 7, 8, 10, 15, 19, 27 and 28 have been amended. New claim 29 has been added.

Applicant appreciates the August 8, 2006 telephone interview with the inventor, the inventor's attorneys, Examiner Lay and Primary Examiner Tung. During the telephone interview, the inventor discussed the differences between the present application and the *Wobben* and *Cease* references, in particular the non-geographically based method of aggregating data of the present invention.

Applicant respectfully reiterates that during the August 23, 2005 telephone interview with the inventor and his attorney, Examiner Betz suggested amending the claims to further define the network and in particular, that the interconnectedness of the line segments be clearly set forth in the claims because this would clearly distinguish his method over the cited art. The reason for doing so, the Examiner said, at that time was that this feature was not present in the teachings of the prior art. In response to the Examiner's suggestion, Applicant amended claims 1, 19 and 28 to define the monitored network as including the plurality of interconnected line segments wherein information is obtained with respect to each interconnected line segment. Notwithstanding these amendments, Applicant's claims 1, 19, and 28 have been again amended to define the acquisition of end to end information based on network connectivity of the interconnected line segments to better set forth his invention and distinguish it from the prior art.

Specification Objection

The specification has been amended to correct the informalities as noted by the Examiner.

Claim Rejection Under 35 U.S.C. § 103(a)

Claims 1, 3-5, and 11-18 are rejected under 35 USC §103(a) on the basis of the previously cited *Wobben* publication, the reference "Sams Teach Yourself Microsoft

Excel 2000 in 24 Hours", and the *Cease* et al. IEEE article "Real-Time Monitoring of the TVA Power System".

Claim 6 is rejected under 35 USC §103(a) on the basis of *Wobben*, Sams Teach Yourself Microsoft Excel 2000 in 24 Hours, the *Cease* et al. IEEE article, and the reference "Sams Teach Yourself Microsoft PowerPoint 2000 in 10 Minutes".

Claims 7-10, 19, 21-23, and 25-27 are rejected under 35 USC §103(a) on the basis of *Wobben*, Sams Teach Yourself Microsoft Excel 2000 in 24 Hours, the *Cease* et al. IEEE article, and further in view of the previously cited Bauer et al. patent.

Claim 24 is rejected under 35 USC §103(a) on the basis of *Wobben*, Sams Teach Yourself Microsoft Excel 2000 in 24 Hours, the *Cease* et al. IEEE article, the *Bauer* et al. patent, and Sams Teach Yourself Microsoft PowerPoint 2000 in 10 Minutes.

Finally, claim 28 is rejected under 35 USC §103(a) on the basis of *Wobben* and the *Cease* et al. IEEE article.

A prima facie case of obviousness is established when one or more references that were available to the inventor and teach that a suggestion to combine or modify the references, the combination or modification of which would appear to be sufficient to have made the claimed invention obvious to one of ordinary skill in the art.

Under M.P.E.P. § 706.02(j), three basic criteria must be met for the *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Additionally, prior art may be considered not to teach an invention and thereby may fail to support an obviousness rejection, particularly when the stated objectives of the prior art reinforce such an interpretation. *WMS Gaming Inc., v. International Game Tech.*, 184 F.3d 1339, 51 USPQ2d 1385 (Fed. Cir. 1999).

The present method organizes data to report distribution network data based on aggregation of the data. The claimed electrical features of the present application simplify the analysis of large amounts of network data by removing the geographic element from the analysis. Instead, the data is analyzed purely on a topological basis over time, topological meaning based on network connectivity. The present application uses a three dimensional graph which represents ordered line segments of the distribution network, on the X-axis, time on the Y-axis, and the data value under study on the Z-axis.

The network data may be any quantity that network related, i.e., quality of service metrics such as the number of momentary power interruptions counted on a given line section, or the number of retries required for affecting communication over a given line segment. The data of interest however may be any network related value.

In monitoring electrical distribution networks, those skilled in the art usually ask three main questions:

1. How bad is it?
2. How long has this been going on?
3. Where else is this happening?

The present application does not teach monitoring network data based on geographical relationship; but instead, monitors data based on the electrical interconnectedness of the line segments. For example, it is common that a transmission line segment travels through different geographical locates. A transmission line segment may travel in a forest terrain and continue travel in grassland terrain (i.e. void of trees). The trees of the forest terrain may create problems but the electrical transmission continues beyond the problem area. The continuing electrical path is the reference used by the system to determine where the problem is located. It is this network connectivity, i.e., the topological information that the system monitors and analyzes. Although topological and geographical may seem related, topological relates to the entire connectivity of the system in contrast, the *Wohler and Cease* references are geographic-centric.

For an entire electrical distribution network, complete and accurate geographic data is usually not available based on physical difficulties of obtaining data, i.e., remoteness and/or inaccessibility of geographic locations. The present application aggregates quality of service data to a common point (such as a line segment) from which it is served. The feed points are then represented by their electrical interconnectedness.

The present application teaches choosing a network line segment and analyzing the network path. As such, the present application does not use any geographical information; but instead, chooses an electrical path as the reference. The present application then teaches using a three-dimensional plot to document behavior of the quality of service data over time. As such, the present application answers the question of "how long has this been going on" in a quantitative way that allows the user to judge for themselves the significance of the data. Line segments (or other similar aggregation points) are strung together, given equal lengths for the sake of graphing, and made to form one axis, the X-axis. The Z-axis is used to quantify the aggregated data of interest. Finally, the Y-axis is used to capture the information over time. By varying the graphical component of the metric of interest on the Z-axis, the present application teaches an answer for the question of "how bad is it?"

With regard to the display of a quality metric, the *Wobben* reference teaches that a single icon may summarize the operational status of a site. The icon is placed on a geographic map (corresponding to the plant's location), or in a matrix. Under *Wobben*, the approach is suitable for analysis of generation facilities and for the electrical transmission network, but becomes impractical for the electrical distribution network (with its myriad twists and turns, overlapping networks, and ensuing complexity). Only the geographic map attempts to answer the question of "where else is this happening" is taught under the *Wobben* reference. However, as noted, in the distribution environment, complete and accurate geographic data is usually not available.

In the present application, the problem addressed is the electrical interconnectedness of the various points, not their geographical relationship. The present application therefore seeks to create order out of the data by taking a single

interconnected slice through the distribution network. The present method aggregates service location of quality of service data to a common point (such as a line segment) from which it is served. The feed points may then be represented by their electrical interconnectedness.

With regard to time, the *Wobben* reference teaches that "[t]he respective maps or overviews can be produced by virtue of continuous operating data acquisition in up-to-date fashion, that is to say with the up-to-dateness of a day or less but also with the up-to-dateness of a week." (*See*: page 3, ¶0040). The *Wobben* reference does not teach how it represents changes over time except to show a collection of historical daily screens, or to have different icons to show the longevity of a particular problem.

The present application teaches a different approach. The present method uses a three dimensional plot to document the behavior of the metric of interest over time, so to answer the question of "how long has this been going on" in a quantitative way which allows the user to judge for themselves the significance of the data.

With respect to the *Wobben* reference, it monitors separate installations of a system, not interconnected segments of a system. Importantly, there is no teaching or suggestion of graphical display such as Applicant requires which aggregates both current and historical data about a particular performance parameter or characteristic not only for a single installation, over an interconnected portion or segment of the installation.

The Examiner contends that it is implicit that the monitoring of *Wobben* provides status information between the installations, i.e., the lines within the network. This distinction of connectivity between the present application and the *Wobben* is crucial. The test "for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art". M.P.E.P. §2143.01(*See: In Re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000)). In the present rejection, the Examiner implicit argument is silent with respect to these factors. The Examiner's burden is to "present a convincing line of reasoning as to why the artisan would have found the

claimed invention to have been obvious in light of the teachings of the reference." M.P.E.P. §706.02(j).

If the Examiner's implicit argument is based on personal knowledge of the Examiner, then Applicant respectfully submits that when the rejection is based on facts within the personal knowledge of the Examiner, the data should be as specific as possible and the reference must be supportive, when called on by the Applicant, by the affidavit of the Examiner. *See*: C.F.R. § 1.107. Thus, the Applicant requests a personal affidavit under 37 C.F.R. § 1.107(b) with respect to the rejection based partly on the Examiner's implicit argument, if warranted.

The *Cease* article describes the deployment of a number of monitoring units that gather data. In Figure 4 on page 50, this data is displayed on a three-dimensional graph, the only similarity to the present application. The *Cease* reference teaches positioning each of their "monitoring units" geographically on a map. This consumes the X and Y-axis's on the graph. The geographical references are then removed (leaving a square X-Y grid), and the data allowed to influence the Z-axis. The data is played out over time and the human (with a keen eye) must catch the anomalies of interest.

The technique taught by the *Cease* reference does not appear to aggregate data in any way, and it relies heavily on geography as the basis for positioning data on the graph. In contrast, the present application does not make any use of geographic information. Instead, a single electrical path is chosen as the reference. As noted, line segments (or other similar aggregation points) are strung together, given equal lengths for the sake of graphing. With the *Cease* approach, "[t]o see the transient response, data would have to be played back at a much slower speed than real time." (*See*: page 50). In contrast, the present application teaches that simply simply looking at the stationary graph can see the behavior of the response. The relative highs and lows and even seasonal patterns can be seen clearly on the graph.

In summary, both the *Cease* and *Wobben* references attempt to answer the question of "where is this happening" by means of a two dimensional geographic representation. The *Wobben* reference overlays icon on the geographic map, and the *Cease* reference causes the graph to be distorted in the Z-axis. The present application

does not use geography; but instead uses electrical interconnectedness. Additionally, both the *Cease* and *Wobben* references attempt to answer the question of "how long has this been going on" in a manner that is different than the present application and not suggestive thereof. The *Cease* reference forces the user to playback and scrutinize graphs that are in constant motion, a non-user-friendly approach. The approach of the *Wobben* reference approach is to use different icons, or cause the user to review old two-dimensional data.

The teachings of the *Wobben* reference disclose accessing separate installations and the teachings of the *Cease* reference disclose accessing individual nodes within a network. In other words, the references access individual points, not interconnected line segments as Applicant's claims require. Therefore combining the node with the installation would not result in a reasonable expectation of success achieved by the *Wobben* reference. Although the *Cease* reference discusses a network, the Examiner has not provided a *prima facie* case of obviousness because there is not teaching or suggestion in either the *Cease* or *Wobben* references about obtaining, in real time, end to end information about the plurality of interconnected line segments.

With respect to Applicant's method as set forth in his independent claims 1, 19, and 28, *Cease* et al. is directed at individual points or nodes within the distribution network, not a series of interconnected points (i.e., line segments) which would extend between nodes. And there is no teaching of suggestion in Cease, et al. of interconnecting the undivided points for display purposes. Information is collected only for the nodes. Accordingly, there is no way to determine what is happening between one node and another. This failure to provide an end-to-end monitoring and display capability makes it much for difficult, if not impossible, for an operator to do more than a "gross" analysis of the system whereas Applicant's method facilitates a much "finer" analysis that is more likely to uncover problems before they cause a failure. In addition, Applicant's method enables the user to pinpoint exact locations within a section where the problem has or may arise, rather than simply being able to say that it somewhere between node A and node B. In a power distribution system such as the TVA which large geographically and includes large amounts of rugged terrain not easily reached,

the ability of Applicant's method to identify, find and fix a problem has significant advantages over the phasor measurement methodology and mapping of *Cease* et al.

Based upon the foregoing, Applicant submits that his claims 1, 3-19, and 21-28 and 29 are allowable. Dependent claims, by their nature, include all of the limitations of the parent independent claim and any intervening claims from which they depend. Claims 3-18 and 21-27 and 29 each depend either directly or indirectly from independent claims 1 and 19, and accordingly, are believed allowable under 35 U.S.C. § 103(a) over the references for at least the same reasons as independent claims 1 and 19.

If for any reason the Examiner is unable to allow the application on the next Office Action and feels that an interview would be helpful to resolve any remaining issues, the Examiner is respectfully requested to contact the undersigned attorney for the purpose of arranging such an interview.

Request for a One (1) Month Extension of Time accompanies this Response.

Respectfully submitted,

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